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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,646	08/18/2003	Andreas Docter	510.1082	5232

23280 7590 01/25/2007

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EXAMINER	
HANDAL, KAITY V	
ART UNIT	**PAPER NUMBER**
1764	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/643,646	DOCTER ET AL.	
	Examiner.	Art Unit	
	Kaity Handal	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/3/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/3/2006 has been entered.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 7, and 9 are rejected under USC 102(e) as anticipated by Goebel et al. (US 6,838,062 B2).

With respect to claim 1, Goebel teaches a fuel processor comprising a mixture formation chamber/inlet (fig. 1, 52) configured to form a mixture of a hydrocarbon or a hydrocarbon derivative/fuel (48) with water (50) and air (36) (col. 5, lines 23-34);

an autothermal reactor/reformer (14) (col. 3, lines 54-62), the autothermal reactor/reformer (14) including a catalyst material (col.4, lines 50-54); and a temperature regulated (col. 4, lines 50-60 and col. 7, lines 47-57) start-up burner (12 & 40) including a burner unit (12) configured to combust the hydrocarbon/fuel (30) with air (28) so as to heat at least one of the mixture formation chamber (52) and the autothermal reactor/reformer (14) to a respective operating temperature (col. 5, lines 8-10 and col. 4, lines 50-53), said start-up burner (12) being configured to meter/(flow control) an air supply (36) (col. 11, lines 44-47) to a mixing zone/inlet (40) where air of the air supply (36) is mixed with hot gas (32) coming out of the start-up burner (12 & 40), so as to regulate a temperature of the catalyst material, before the hot gas contacts the at least one of the mixture formation chamber and the autothermal reactor (col. 4, lines 50-60).

With respect to claim 2, Goebel teaches wherein a flow of the hot gas/exhaust gas is guided so that the hot gas/exhaust gas heats the autothermal reactor/reformer (14) without material contact with the catalyst material (col. 4, lines 47-54 and col. 5, lines 23-34).

Regarding limitations recited in claims 7 and 9 which are directed to a manner of operating disclosed device, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions

relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

3. Claims 3-6 and 10 are rejected under USC 103(a) as being unpatentable over Goebel et al (US 6,838,062 B2), as applied to claim 1 above, and further in view of Chludzinski et al. (4,473,622).

With respect to claim 3, Goebel as modified discloses all claim limitations as set forth above but fails to show wherein a flow of the hot gas is guided into a reaction chamber of the autothermal reactor. Chludzinski teaches rapid starting reactor (fig. 1) wherein a flow of the hot gas (from burner (15)) is guided into a reaction chamber of the autothermal reactor/catalytic cracker (17) in order to bring the catalytic cracking bed up to the temperature at which cracking reaction is initiated (col. 3, lines 27-36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to guide the flow of the hot gas into a reaction chamber of the autothermal reactor in Goebel's modified fuel processor, as taught by Chludzinski, in order to bring the catalytic cracking bed up to the temperature at which cracking reaction is initiated.

With respect to claim 4, Goebel teaches wherein a flow of the hot gas/exhaust gas is guided into the reaction chamber/reformer (14) via the mixture formation chamber/inlet (40) (illustrated in fig. 1).

With respect to claim 5, Goebel teaches wherein a flow of the hot gas/exhaust gas is fed directly into the mixture formation chamber/inlet (40) (illustrated in figure 1).

With respect to claim 6, Goebel teaches wherein a heat exchanger (16) configured to exchange heat between a product gas/reformate gas stream (54) of the autothermal reactor/reformer (14) and air (38) supplied to the mixture formation chamber/inlet (40) (illustrated in fig. 1.

With respect to claim 10, Goebel as modified discloses all claim limitations as set forth above but fails to show wherein reactor system/fuel processor is disposed in a fuel cell-driven motor vehicle. Chludzinski teaches wherein reactor system/fuel processor is disposed in a fuel cell-driven motor vehicle in order to function as a highly effective fuel cell power source (col. 7, lines 33-37).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to dispose Goebel's modified reactor system/fuel processor in a fuel cell-driven motor vehicle, as taught by Chludzinski, in order for said reactor system to function as a highly effective fuel cell power source.

Allowable Subject Matter

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reasons for allowance is that the apparatus of claim 1 when combined with having the start-up burner include a housing configured for the bypass air to flow between the housing and the burner unit, wherein the housing includes a mixing zone configured to mix hot gas coming out of the burner with the bypass air, and wherein said burner unit being disposed in the housing is absent from any prior art of record.

Response to Arguments

35 U.S.C. §112

Rejection made under 35 U.S.C. §112 is withdrawn by examiner due to applicant's convincing remarks.

35 USC § 103 Rejection

Applicant argues that Goebel's inlet (40) is not a mixing zone. Examiner respectfully disagrees. Goebel teaches that inlet zone (40) includes fuel inlet (48) and air inlet (50) (col. 5, lines 26-30) and therefore inlet zone (40) inherently functions as a mixing zone for mixing fuel and air.

Applicant argues that Goebel does not show "a mixing zone where air of the air supply is mixed with hot gas coming out of the burner unit so as to regulate a temperature of hot gas coming out of the start-up burner to a value near or below a deterioration temperature of the catalyst material, before the hot gas contacts the at least one of the mixture formation chamber and the autothermal reactor." Examiner respectfully disagrees. Goebel does teach a mixing zone/inlet (fig. 1, 40) where air of

the air supply (36) is mixed with hot gas (32) coming out of the burner unit (12) so as to regulate a temperature of hot gas coming out of the start-up burner (12 & 40), before the hot gas contacts the at least one of the mixture formation chamber and the autothermal reactor (col. 4, lines 50-60).

Applicant argues that Geobel fails to explicitly teach a temperature regulated start-up burner configured to meter air. Examiner respectfully disagrees. Geobel teaches a temperature regulated (col. 4, lines 50-60 and col. 7, lines 47-57) start-up burner (12 & 40) including a burner unit (12); said start-up burner (12) being configured to meter/(flow control) an air supply (36) (col. 11, lines 44-47) to a mixing zone/inlet (40) where air of the air supply (36) is mixed with hot gas coming out of the burner unit (12).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KH

1/4/2007

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